

NASA and Me

Douglas Wong
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Who Am I?

- **High School:** St. Francis Xavier's School, Hong Kong (1983)
- **College Degrees:**
 - Master of Science in Mechanical Engineering (University of Maryland, 1989)
 - Currently pursuing a Master of Science in Systems Engineering (Stevens Institute of Technologies, NJ, USA)
- **Professional License/certificate:**
 - Professional Engineer of Virginia, USA
 - Space Systems Engineering Certificate
- **NASA Engineer for 21 years**
- **Disciplines:**
 - Mechanical Engineering, Systems Engineering, and Human Factors
- **Current Job:**
 - NASA Human Factors and Systems Engineer at NASA Johnson Space Center in Houston, Texas
 - Manager, Usability Testing and Analysis Facility
 - Manager, Small Business Innovative Research Human Factors Subtopic
- **Resides in Sugar Land, Texas (at city near Houston, Texas)**

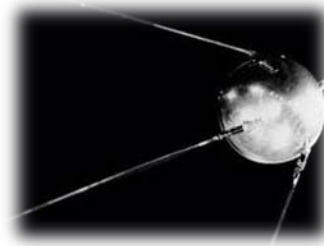
My Workplace ...



History of NASA



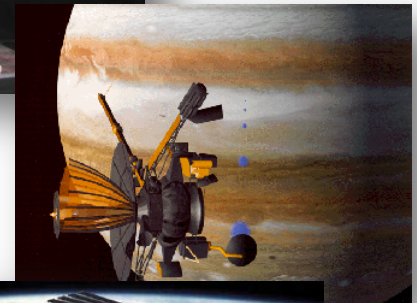
US President Dwight D. Eisenhower established the National Aeronautics and Space Administration (NASA) in 1958, partially in response to the Soviet Union's launch of the first artificial satellite (Sputnik) the previous year. NASA grew out of the National Advisory Committee on Aeronautics (NACA), which had been researching flight technology for more than 40 years.



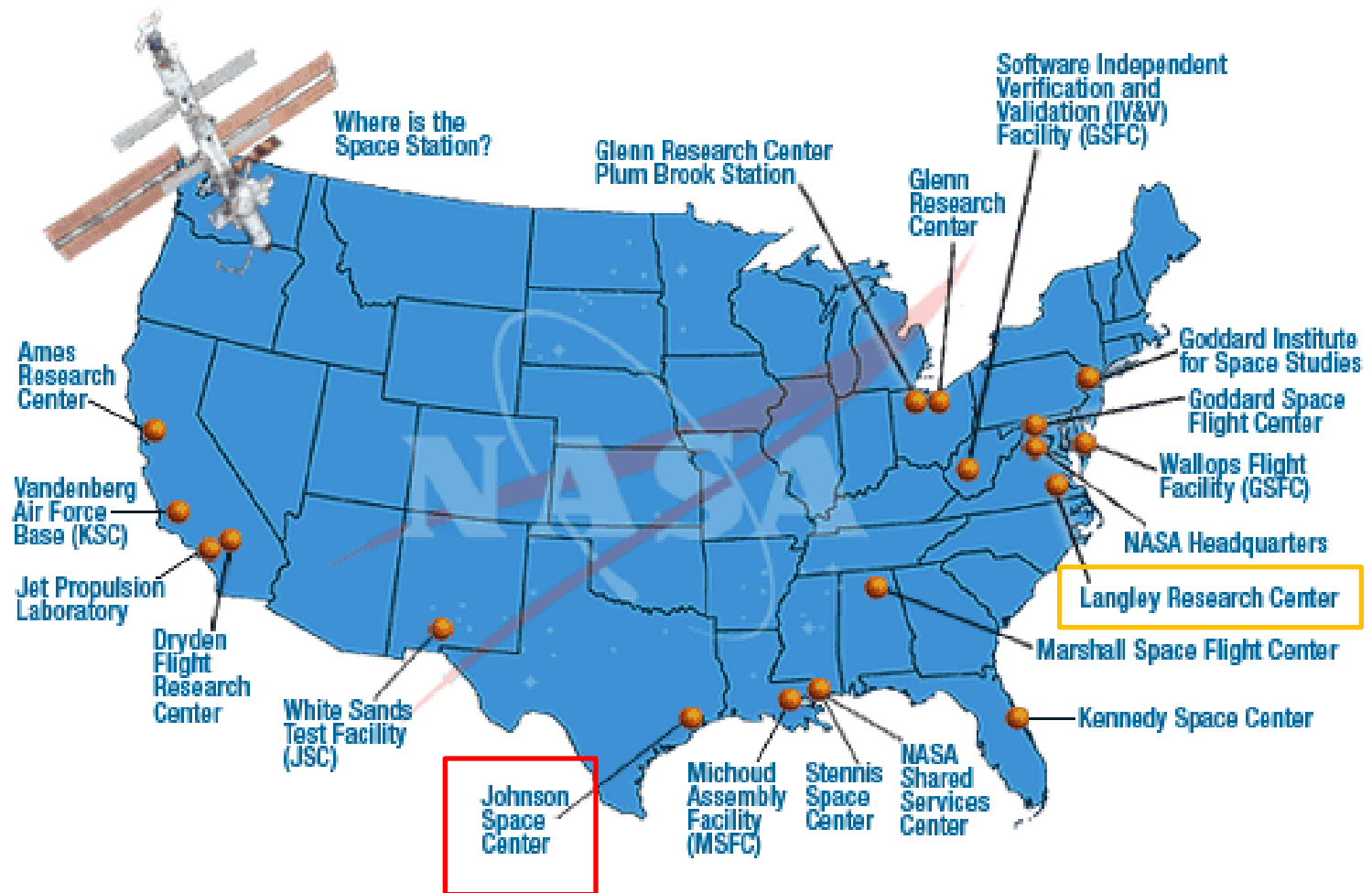
NASA's Four Principal Organizations

NASA conducts its work in four principal organizations, called mission directorates:

- [Aeronautics](#): pioneers and proves new flight technologies that improve our ability to explore and which have practical applications on Earth.
- [Exploration Systems](#): creates capabilities for sustainable human and robotic exploration.
- [Science](#): explores the Earth, solar system and universe beyond; charts the best route of discovery; and reaps the benefits of Earth and space exploration for society.
- [Space Operations](#): provides critical enabling technologies for much of the rest of NASA through the space shuttle, the International Space Station and flight support.



NASA Centers



I work @ NASA Johnson Space Center



Main Campus: Lyndon Johnson Space Center,
Houston, Texas (Where I work)



Ellington Airfield, Houston, Texas



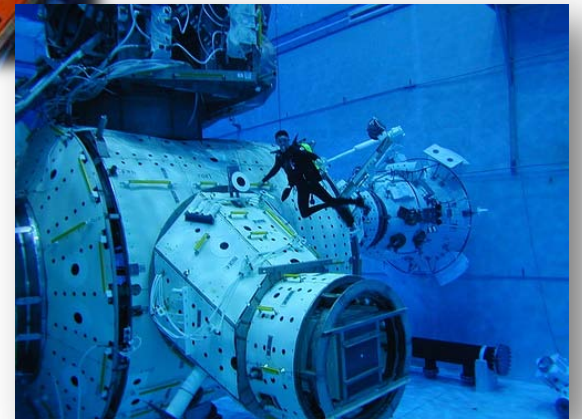
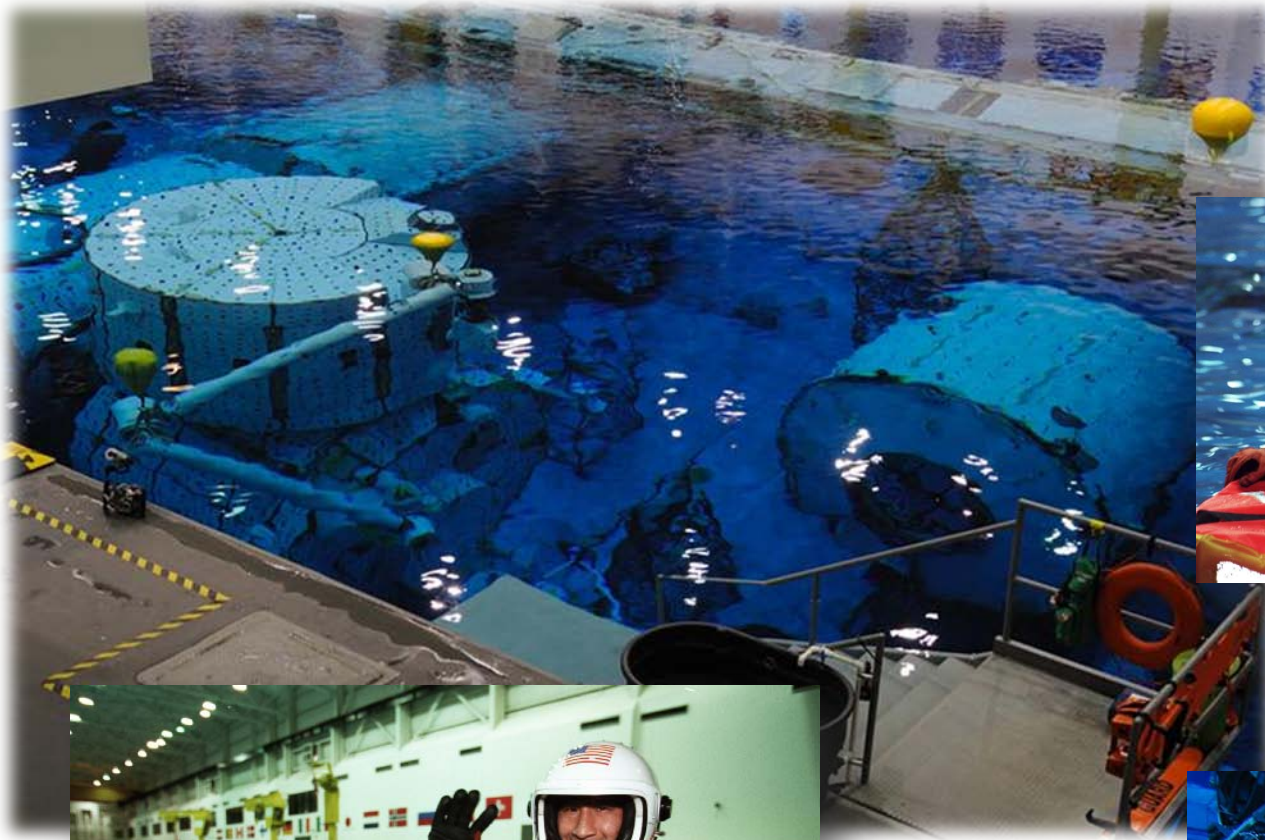
White Sands Test Facility,
White Sands, New Mexico

NASA Johnson Space Center Major Facilities ...

Mission Control Center



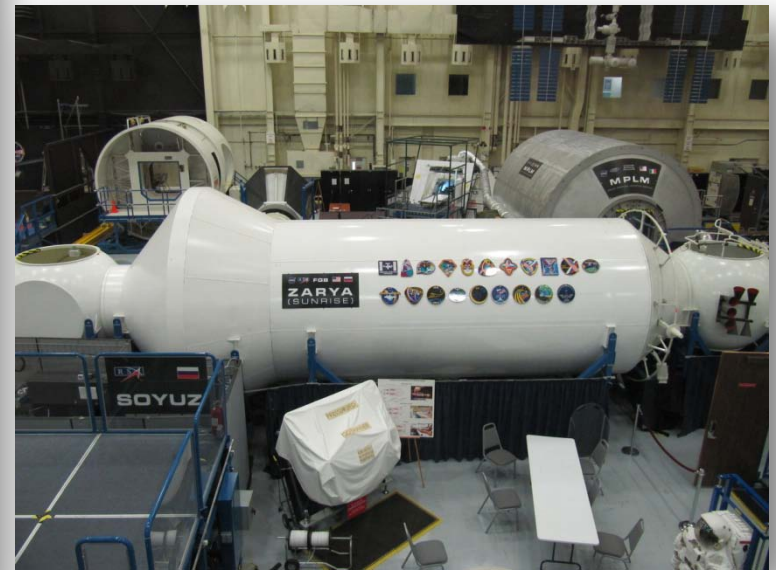
Sonny Carter Neutral Buoyancy Laboratory



Vehicle Mockup Facility – Shuttle Mockups

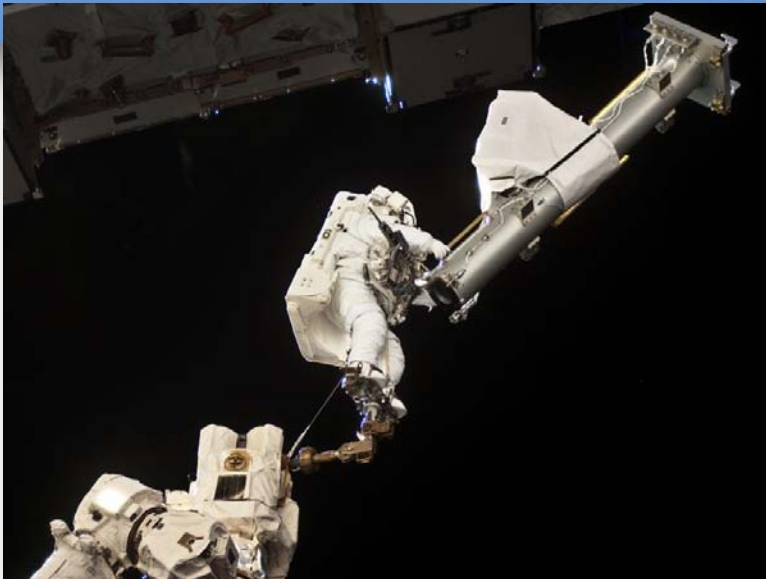


Vehicle Mockup Facility – International Space Station Mockups



NASA Johnson Space Center Major Projects ...

Space Shuttle and International Space Station Operations



Constellation Program



Ares V Rocket

Ares I Rocket

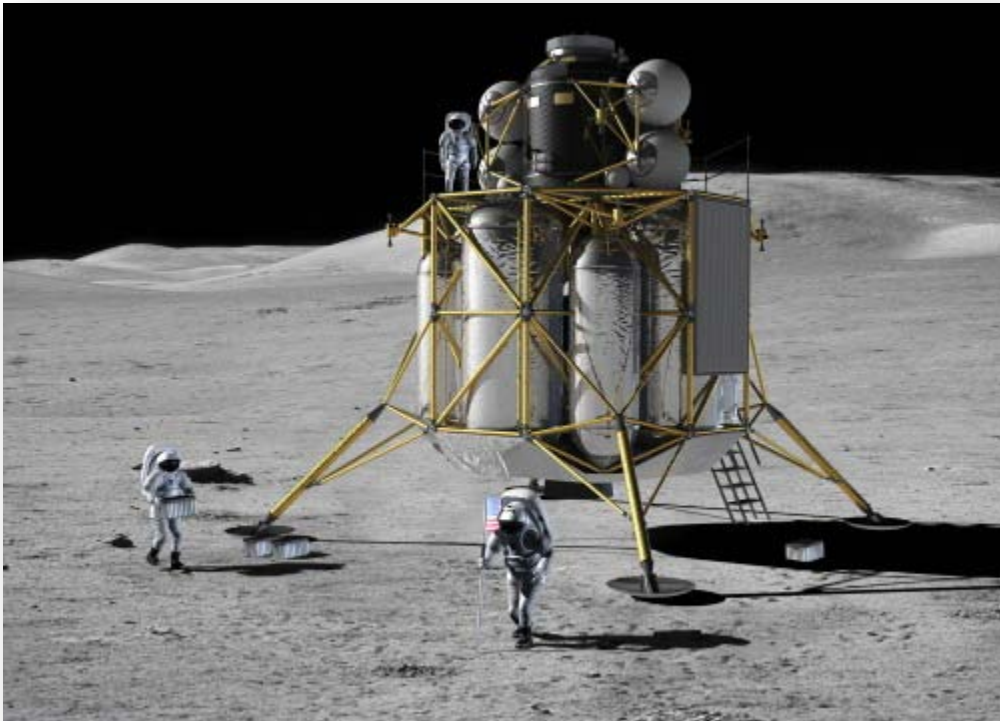


**Ares I Rocket with
Crew Exploration Vehicle**



Ares V Rocket with Lunar Lander

Constellation Program



Lunar Lander Concept



**Crew Exploration Vehicle and
Lunar Lander Concepts**

Constellation Program



Crew Exploration Vehicle Test Article



Launch Abort Testing



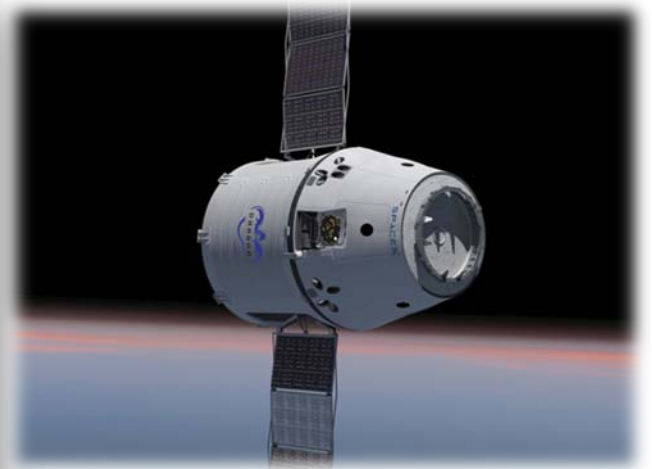
**Crew Exploration Vehicle
Test Article**



Launch Abort Rocket

Launch Abort Test in April 2010

Commercial Space Vehicles Development



My Job Functions at NASA Johnson Space Center ...

Usability Testing and Analysis Facility (UTAF)

Overview

- One of the Space Human Factors Laboratories of NASA Johnson Space Center's Habitability and Human Factors Branch
- Human Factors: A engineering/psychology discipline that develops human and machine system interfaces
- UTAf Primary focus: Human factors evaluation and usability testing of crew/vehicle interfaces
- Staff
 - NASA Manager / Technical Monitor: Douglas Wong
 - Contractor Lead: Kritina Holden
 - Current number of staff members: 10
- <http://sf.jsc.nasa.gov/HHFO/utaf/default.aspx>

Space Habitat Evaluations with Mockups



Lunar Space Habitat Evaluations using Mockups

Crew Space Vehicle Evaluations



Crew Exploration Vehicle Habitable Volume Evaluations



Space Suit Evaluations



Space Vehicle Control Evaluations



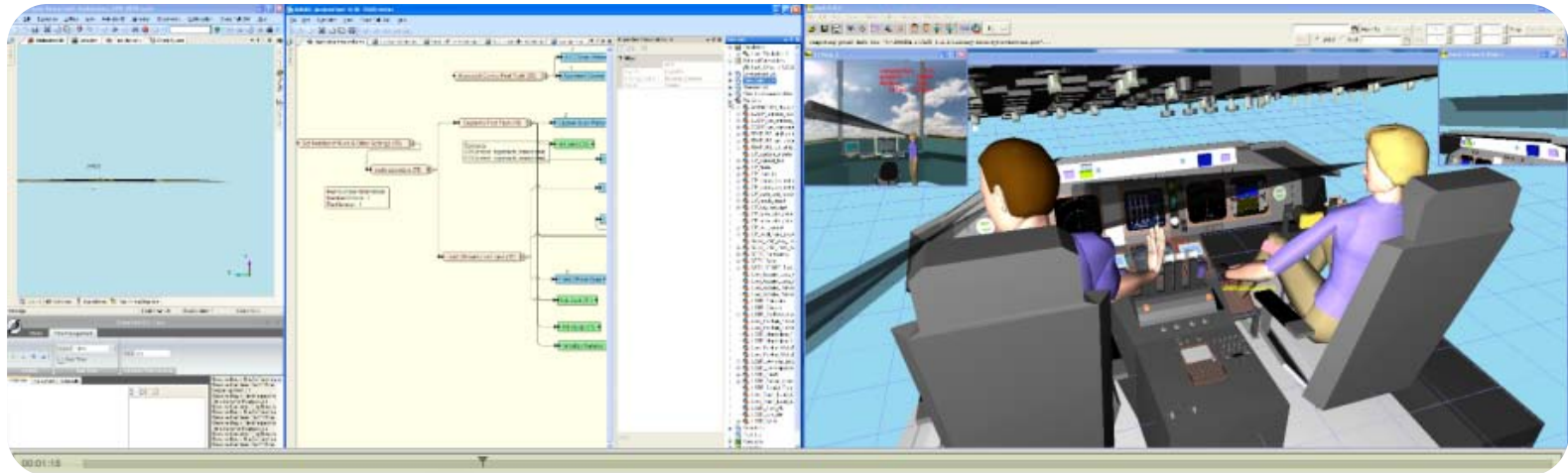
Space Vehicle Display Evaluations

Crew Space Vehicle Evaluations

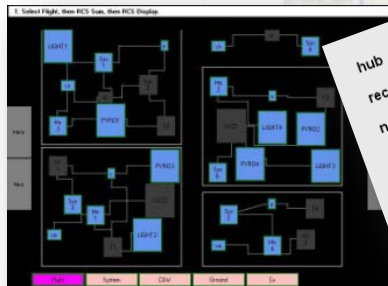


Lunar Rover Evaluations

Human Factors Research



Human Modeling and Simulation Research



Medical Procedures Development



Information Presentation Research

What I have learned through life ...

These are things I've learned

- Find your talents and recognize your weaknesses, then
 - Sharpen your talents
 - Accept and correct your weaknesses
- Find your passion and pursue it (you may have multiple)
- Maintain a balanced life
- Learn as much as you can (not just from school)
- Be curious
- Develop an analytical mind
- Don't let others think for you
- Think globally (everything is connected)
- See difficulties / adversities as opportunities to learn new things

!! Don't forget !!

- Your family, relatives, and friends
- The people / living things around you
- Love your environment



Questions?